
Science Flight Report

Operation IceBridge Arctic 2012



Flight: F15
Mission: Gap - Summit

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	16
Flight Request	12P006
Date	Wednesday, April 4, 2012 (Z)
Purpose of Flight	Operation IceBridge Mission Gap – Summit
Take off time	11:00 Zulu from Thule Air Base (BGTL)
Landing time	16:53 Zulu at Kangerlussuaq (BGSF)
Flight Hours	6.1 hours
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	Aborted mission at 15:22 Z at waypoint DOP51 due to engine shut down
Accomplishments	<ul style="list-style-type: none">• Low-altitude survey (1,500 ft AGL) over the Greenland Ice Sheet.• ATM, snow, Ku-band, accumulation and MCoRDS radar, gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines.
Geographic Keywords	Greenland Ice Sheet, Camp Century, Summit Station
Satellite Tracks	None
Repeat Mission	1999 (partial)

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	46 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.2 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	400 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	400 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	120 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	85 GB	None
KT-19 Skin Temp.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6.6 MB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.5 GB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	140 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today's flight was a target of opportunity, with the main purpose to reposition the P-3 from Thule to our new base of operations in Kangerlussuaq. Its primary purposes were twofold. First, we flew an east-west line all the way across the ice sheet to Cecilia Nunatak in the east. This line also covers a gap in OIB coverage in central Greenland, and does so along a series of 1999 ATM lines to yield a lengthy dh/dt history. Second, we overfly a series of Doppler *in-situ* sites surveyed in 1987 near Summit, which again will yield an exceptionally long dh/dt history over these sites.

The weather over southern Greenland was poor and we had hoped to stay just north of it on the Thule – Celicia Nunatak line. It worked out perfectly. We had expected to lose data after that, but it turned out that we could underfly or penetrate the low clouds over summit. We only lost 5% of the data. At 15:22 Z at waypoint DOP51 the decision was made to shut down engine #3 and fly straight to Kangerlussuaq. All in all we had collected more science data than we had expected before takeoff.

Individual instrument reports from experimenters on board the aircraft:

ATM: The ATM T3 spare laser was triggered successfully by the MCoRDS radar to avoid EMI. ATM collected a total of 4.4 hours of science data with 95% data coverage

MCoRDS: The MCoRDS system worked well.

Snow and Ku-band radar: The snow and Ku-band radars worked well and collected 3.5 hours of data.

Accumulation radar: Worked well.

Gravimeter: Worked well.

Magnetometer: Worked well. Data acquisition was switched back to the Lamont logger and worked well.

DMS: DMS worked well and collected data on the primary system only today.

KT-19 skin temperature sensor: System worked well.

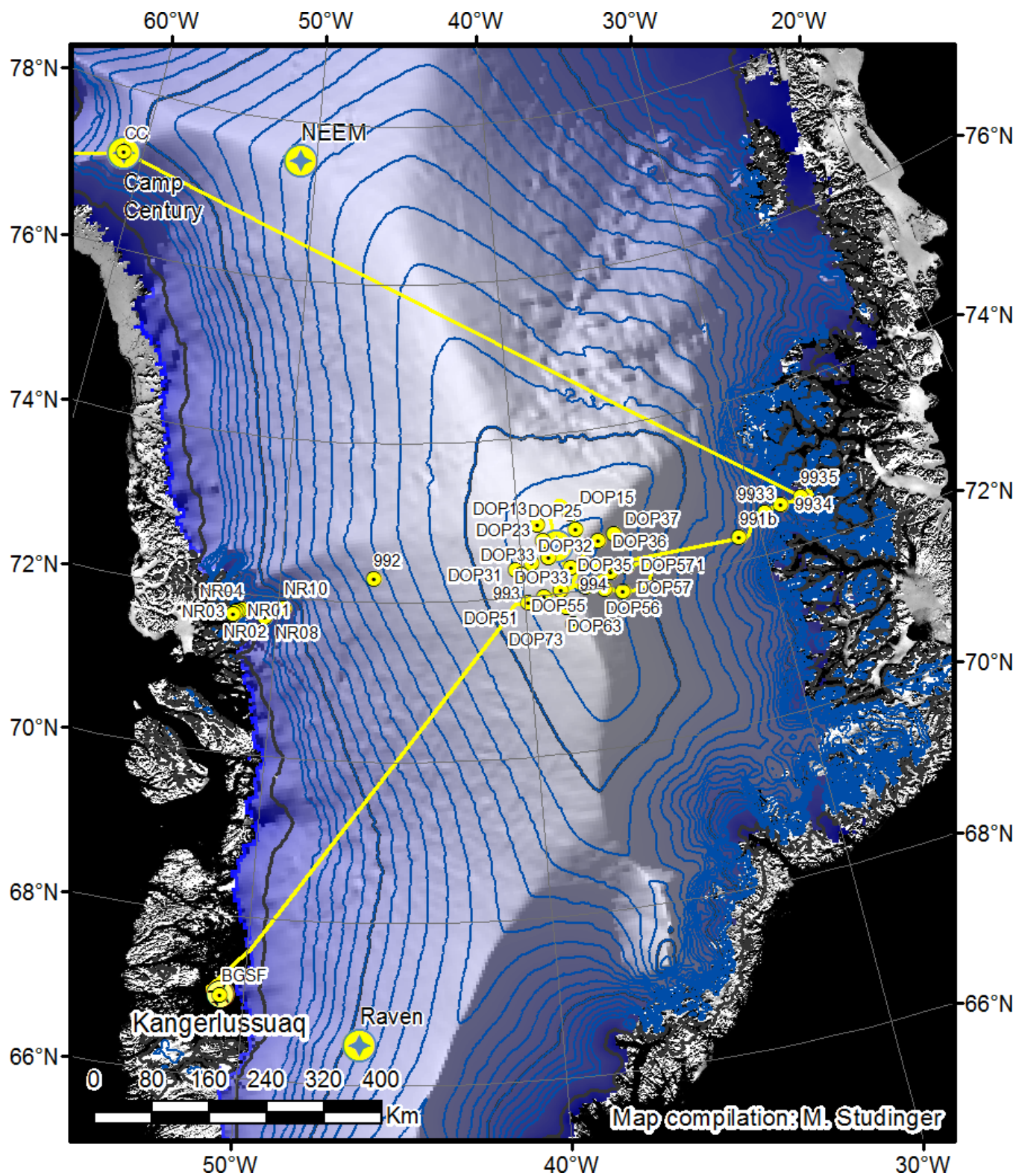


Figure 1: Today's aircraft trajectory (yellow).

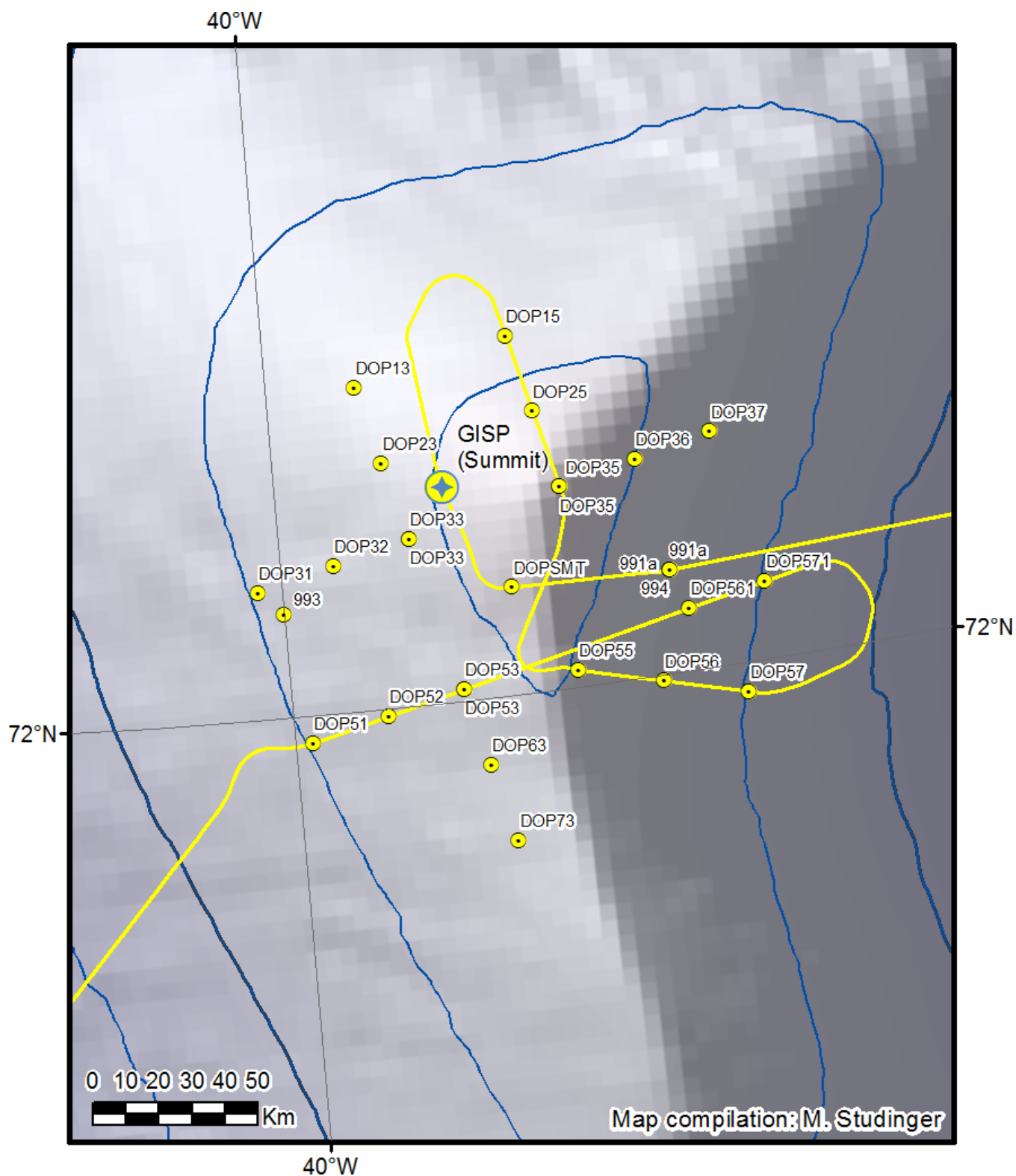


Figure 2: Today's aircraft trajectory (yellow) over the Summit cluster.